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Parts to be connected by means of a screw connection, in particular parts of a medical instrument.

SUB A1 > The invention relates to parts to be connected by means of a screw connection, in particular parts of a medical treatment or working instrument according to the preamble of claim 1 or 3 or 14.

It is the purpose of a screw connection to connect two parts with one another, whereby the parts can be screwed with one another in threaded engagement by means of an inner thread and an outer thread engaging therein. Thereby the threaded engagement constitutes, in particular when the pitch of the thread is correspondingly small, a form-fitting connection between the parts, which is stable against axial load forces. When, furthermore, the threaded engagement is limited by means of a rotation stop and the two parts are axially tensioned with one another through the threaded engagement, the screw connection is not only stable in the axial direction, but the parts are also fixedly connected with one another in the circumferential direction, so that the screw connection can serve not only to transfer axial forces but also rotational forces or torques from part to part. In mechanical engineering one exploits this characteristic to fixedly connect two parts with one another. Such a screw connection is stable and capable of transmitting relatively large forces. This is inter alia determined in that the threaded engagement at the thread flanks makes possible relatively large bearing surfaces and therewith a relatively large surface pressure. For this purpose there is needed only an appropriately deep threaded engagement and a screwing between the parts against a rotational movement stop, which can be attained also through checking by means of a lock nut.

A screw connection as described above is also employed in

medical technology. With medical instruments, e.g. with treatment or working instruments such as handpieces and/or with treatment or working tools and apparatus, parts thereof are screwed together with one another. In the case of a handpiece there may be involved e.g. a screw connection between the handpiece and a so-called connecting part and/or a screw connection for releasable attachment of a treatment or working tool with a handpiece, or there may be involved a screw connection between the connecting part and a so-called flexible supply hose. A screw connection of the kinds indicated in the introduction, namely such a connection between a connecting part and a flexible supply hose and a screw connection between a working tool and a handpiece, is for example described in DE 44 39 410 A1.

Parts, to be connected with one another by means of a screw connection, in accordance with the preamble of claims 1 and 3 are described in JP 8-14226 A. In accordance with this known configuration, the screw connecting parts are formed by means of a cylindrical shaft having a threaded bore at an end face and a threaded pin having an external thread, the shaft having a radially outwardly open slot which extends over a part of the length of the threaded bore. The threaded pin is flattened to a transverse dimension corresponding to the width of the slot by means of two taperings arranged opposing one another. It is thus possible to insert the threaded pin in the region of the slot, transversely through the slot into the threaded bore. By means of a further screwing in, the forward end of the flattened threaded pin comes into threaded engagement with the more deeply lying threaded bore and the forward round region in the foot region of the threaded pin with the forward slotted section of the threaded bore. With this known configuration there is needed on both parts of the connection a particular shaping (slot, tapering) which requires not only

additional mechanical outlay but determines also a reduced threaded engagement. Further, the two parts can only be put together in a particular positioning with respect one to the other, namely in a positioning in which the tapered section of the threaded pin fits into the slot. For this there is required particular attentiveness and manipulation by the operating person, in order to ensure that this particular position of the parts relative to one another is attained.

From JP 10-61642 A there can be understood two screw connection parts of which the one part has a threaded hole with a plurality of segment-like hole extensions without thread, and the other part has a threaded pin with a plurality of correspondingly segment-like thread-free core sections. By these means, the threaded bolt can be axially inserted in the threaded hole in a rotational position in which its threaded segments coincide with the segment-like hole extensions. By means of relative rotation of the parts they come into threaded engagement, whereby they can be screwed up onto a stop effective between them, which is formed by means of the end of the one part having the threaded bore and an annular shoulder in the foot region of the threaded pin facing this end. With this known configuration also there is needed a large manufacturing outlay for both parts.

It is disadvantageous with the known screw connection that a considerable manipulative effort is needed in order to screw the two parts together with one another. This is because, on the one hand, initially the two parts must be brought into a relative rotational position location in which the threaded engagement can begin, and then the two parts must be turned relative to one another and screwed together with one another, until the necessary length of threaded engagement is present. This is demanding in terms of manipulation and time.

The object of the invention is to so configure the parts of a screw connection of the kind under consideration that the two parts can be brought into threaded engagement with one another with a small manipulative effort.

A This object is achieved by means of the features of claim 1 or 3 or 14. Advantageous developments of the invention are indicated in the subclaims.

With the solution in accordance with the invention according to claim 1, the threaded bore has a transversely offset hole widening, which is so dimensioned in its cross-sectional size that the threaded pin - which is round or approximately round in cross-section - can be axially inserted therein with its full threading, in a correspondingly transversely offset position. Thereby the hole widening extends in the circumferential direction around about 180° so far that in the transitions, present transversely of the offset, between the hole widening and the remaining threading of the threaded bore, the threaded pin is moveable between its transversely offset insertion position and a position engaging into the remaining thread grooves of the threaded bore. By these means the threaded pin can be inserted offset sideways over the greater part of the length of the threaded bore into the remaining threading of the threaded bore without a screw movement having to be carried out in the region of this length. A screw movement needs to be carried out only upon screwing in of the threaded pin into the remaining longitudinal section of the threaded bore. Since this screwing-in movement can be shorter than the length of the threaded bore overall, by means of the configuration in accordance with the invention there is provided a quick-fastening connection with which the parts can be screwed together with one another and again released with a substantially lesser outlay in terms of manipulation and time.

SUB A3)

The same advantage can also be achieved with the configuration according to claim 3, with which instead of a hole widening of the threaded bore there is provided a cross-sectional tapering on the threaded pin, which, running out at its free end, extends over a part of its length and is so dimensioned radially and in the circumferential direction that the threaded pin can be inserted into the core hole of the threaded bore over that part of its length and then is transversely moveable with its remaining thread grooves into the thread grooves of the threaded bore. With this configuration also, the threaded pin can be inserted over a great part of its length into the threaded bore, whereby a screw movement is to be carried out only in the region of the remaining length of the threaded pin.

With the configurations in accordance with the invention, the offset may be smaller or larger than the radial thread depth.

In the screwed-in condition, over a part of its length the threaded pin is engaged over its entire circumference and otherwise is engaged segment-like with the thread of the threaded bore, whereby with reduced screw length a sufficiently long thread engagement is attained.

With all configurations in accordance with the invention, the parts can be plugged together in any desired rotational position. This is ensured in that on the one hand the threaded pin is round or approximately round or has a full thread, and the hole widening is so large that the threaded pin with its round or approximately round shape or with its full thread can be inserted therein with play for movement. By these means, the plugging together is substantially simplified and the operating person can direct their attention to other things.

SUB A4)

With the configuration in accordance with the invention according to independent claim 14 there is likewise attained a shortened screw length in that the threaded pin can be inserted over a part of its thread length into an insertion hole arranged before the threaded bore. By these means the threaded pin, or also a further cylindrical section of a part having the threaded pin, is so stabilized by means of the preferably provided locking reception or a screw stop in the insertion hole that a shorter engagement length of the threaded pin is sufficient to obtain a sufficiently stable screwing together. There is thus obtained also with this configuration a quick-fastening connection and reduced screwing and time outlay. In the case of the presence of a hole widening it is advantageous to form the stop surfaces - formed by means of radial or cone-like shoulder surfaces - so large that on the one hand the hole widening opens at the end into the associated shoulder surface and on the other hand the shoulder surface on the opposing part covers over the hole widening in the stop position and thus closes it to the entry of contaminants. By these means, hygiene is improved and the cleaning or disinfection or sterilisation is simplified.

With all configurations in accordance with the invention it is further advantageous to provide a stop for the screw connection against which the two parts can be screwed by means of screwing together with one another. Such a stop may be provided in the base region of the threaded bore or in the foot region in the threaded pin. In the latter case there is attained a closure of the threaded bore present, at least partially, and preferably over the entire circumference.

In the case of the presence of the stop in the foot region of the threaded pin or at a spacing from the free end of

the threaded pin there is attained a mechanical engagement with a relatively large axial support length, whereby the screw connection is stabilised also against tilting loads.

As stop surfaces there are well suited conical-section-like inner and outer surfaces. Within the scope of the invention, there may also be provided radial stop surfaces. Both possibilities apply both when, in the screwed together condition, the stop is arranged in the base region of the threaded bore or in the foot region of the threaded pin.

Below, the invention and further advantages which can be achieved thereby will be explained in more detail with reference to preferred configurations and simplified drawings, which show:-

Fig.1 a screw connection in accordance with the invention, in axial section, which is realised on a medical instrument which is illustrated in a side view;

Fig. 2 the screw connection in a so-called exploded illustration of its parts;

Fig. 3 the section III-III in Fig. 2;

Fig. 4 the screw connection in a modified configuration, in an exploded representation of its parts;

Fig. 5 the screw connection in a further modified configuration in an exploded illustration of its parts;

Fig. 6 the section VI-VI in Fig. 5;

Fig. 7 a handpiece shaft of the instrument with a screw connection part in a modified configuration, in axial section.

The instrument, generally designated by 1 in Fig. 1, can be used for the treatment or working of the human or animal body or artificial parts thereof or of models. It is thus suitable for a medical practice or a medical laboratory and in particular for tooth and jaw procedures. The main elements of the instrument 1 are an elongate or rod-like handpiece 2 in the forward end region of which a handpiece shaft 3 is mounted, and if appropriate may project therefrom, in the free end region of which a holding device 4 is arranged in which a tool 5, having a tool shaft 5a and a tool body 5b fastened thereon, is releasably held, a vibration drive 6 for the handpiece shaft 3, which is arranged in the handpiece 2, and preferably also an electronic control device for increasing or reducing the drive power, whereby the control device may be arranged in the instrument 1 or handpiece 2 or also distant therefrom, e.g. on a non-illustrated control apparatus or a foot switch. Preferably there is provided for the setting of the desired drive power a setting member generally designated by 8, which with the present configuration is arranged on the outer surface of the handpiece 2 and its there displaceably mounted, but which could also be arranged distant from the handpiece 2 or instrument 1. The handpiece 2 may extend in a straight manner or it may also be a so-called angled piece having an angled grip sleeve.

It is advantageous to provide an internal or external treatment medium supply with a delivery line 7 which may end at the forward end of the handpiece 2 or may also extend at least partly through the tool 5.

The instrument 1 is connected by means of a schematically

illustrated flexible supply line 9, having a flexible supply hose, with the control apparatus, whereby one or more media lines 7 for the supply of the instrument 1 with energy and treatment and/or working media run in or on the supply line 9.

With the present configuration, the instrument 1 consists of a handpiece 2 forming a forward instrument part and a connection piece 11 forming a rearward instrument part, which connection piece is connected at its rearward end with the flexible supply line 9 and is releasably connected with the handpiece 2 by means of a quick-fastening coupling 12, in particular a plug-in or screw coupling. The quick-fastening coupling 12 is advantageously such a coupling which in the coupled condition allows a rotation of the handpiece 2 around its longitudinal middle axis 2a and thereby ensures the passage of the medium or media present. With the present configuration there is provided a plug-in coupling with a cylindrical or stepped cylindrical coupling pin 12a and a coupling recess 12b which receives it in a rotatable manner, whereby with the present exemplary embodiment the coupling pin 12a projects forwardly from the connection piece 11 and the coupling recess 12b opens rearwardly out of the handpiece 2. By means of a securing device 14, formed by a per se known releasable latching device, in particular a latching device which can be overcome, in the coupled condition there is prevented an unintended release of the plug-in coupling. For a separation process the securing device 14, effective with an elastically biassed securing element, can be readily manually overcome and released.

The media line 7 may pass through the quick-fastening coupling 12 in a sealed manner axially or in a Z-form, as illustrated in a simplified manner in Fig. 1.

The handpiece shaft 3 is mounted in the handpiece 2 so that it can be elastically oscillated in all directions. For this purpose there may serve elastically yielding or compressible mounting parts 15, 16, e.g. mounting rings, of which two or more are arranged at an axial spacing from one another and are schematically illustrated. Due to the elastically yielding mounting, the handpiece shaft 3 is in the rest condition returned to a vibration middle position due to the elasticity of the mounting parts 15, 16. The oscillation generator or vibration drive 6 generates high frequency short-stroke oscillations in the sense of a vibration with a frequency preferably lying in the sonic or ultrasonic range, whereby the oscillations or amplitudes may be linearly directed e.g. transversely and/or longitudinally of the handpiece shaft 3, or may be elliptical or circular orbiting oscillations, in each case in one plane or changing their direction in a spatially circulating manner. Orbital oscillations have proved to be advantageous. Due to the radial and axial elastically yielding mounting of the handpiece shaft 3, three-dimensional oscillations arise in functional operation, so that the tool 5 is abrasively effective in all directions.

In the present exemplary embodiment, the vibration drive has a frequency of about 4 kHz to 8 kHz, preferably about 6 kHz, there being provided in the region of the tool 5 an amplitude of the preferably three-dimensional oscillations of about 0.05 mm to 0.2 mm, in particular about 0.1 mm. The control device may be so constituted that a setting of an oscillation power in the above-mentioned range, or also a setting above this range, is made possible, so that if appropriate also considerably greater amplitudes can be set.

The instrument 1 in accordance with the invention is thus suited particularly well for various tools 5 which may be associated therewith as a tool set and which differ from

one another due to differing shape and/or size and/or purpose.

The holder device 4 is the instrument-side part of a screw connection 17 having an outer cylindrical connection part 17a, which has in its end region a threaded bore 18 having a length L, and an inner connection part 17b which has a threaded pin 19, which can be screwed into the threaded bore 18. With the present exemplary embodiment, the outer connection part 17a is formed by means of the handpiece shaft 3 and the inner connection part 17b is formed by means of the threaded pin 19, which is the rearward free end of the tool 5. The tool 5 has a rotational engagement element 21, here in the form of a hexagonal nut having key surfaces with which the screw connection 17 can be screwed against a stop 22 and thus locked. The stop 22 is formed by means of a conical-section-shaped shoulder surface 23 formed to be forwardly divergent, on the forward end of the threaded pin 19, and a matching cone-like inner shoulder surface 24 at the edge of the threaded bore 18 or of the connection part 17a. The outer shoulder surface 23 is the rearward boundary of a thickening having the rotational engagement element 21, from which the tool shaft 5a extends forwardly in a straight manner, angled or bent in an S-shape. To this extent the configuration of the screw connection 17 is known and thus part of the state of the art, as is indicated in Fig. 1. The conical angle W of the shoulder surfaces 23, 24 is about 30 to 60° or 45 to 60°.

From this the configuration in accordance with the invention differ as follows.

With the exemplary embodiment according to Fig. 2 and 3, in which the same or similar parts are provided with the same reference signs, the length of the threaded bore is indicated by L1. Thereby, in the entry region of the

threaded bore 18 there is arranged axis-parallel an insertion hole 25 having the length L2, the inner diameter D1 of which is adapted to the outer diameter D of the threaded pin 19 taking into account a play for movement, and forms a one sided hole widening 20. The insertion hole 25, preferably formed by means of a bore, is radially offset by an amount v with regard to the longitudinal middle axis 2a and preferably offset by an amount corresponding approximately to the radial thread groove depth t, so that the inner bounding surface 25a of the insertion hole 25 runs at the level of the thread tips of the inner thread 26 of the threaded bore 18. The hole widening 22 has a half-moon shaped sectional form. In contrast thereto, in Fig. 3 the thread outer diameter of the threaded bore 18 is designated by D2 and the thread core diameter is designated by D3. The outer diameter of the connection part 17a is of a size such that the hole widening 20 is laterally covered over by the neighbouring lateral wall section of the sleeve-like body part of the connection part 17a and the shoulder surface 24 is at least partly present also in the region of the end hole widening 20. By these means, the hole widening 20 opens out at the end within the shoulder surface 24, and the annular shoulder surface 23 is so dimensioned that the hole widening 20 is covered over and closed in the screwed-together stop disposition by the shoulder surface 23. Thus, contaminants and/or infectious agents cannot enter into the hole widening 20. By these means, the hygiene is improved and the cleaning, disinfection and/or sterilisation simplified.

The length L2 of the insertion hole 25 is smaller than the length L3 with which the threaded pin 19 or the tool 5 maximally projects into the threaded bore 18 when it is located at the stop 22. This means that the threaded pin 19 projects with only a part of its length L4 into the longitudinal section L5 of the threaded bore 18 which lies

behind the insertion hole 25 and is present with its inner threading 26 over the entire circumferential region.

The size of the chamfering or of the inner annular shoulder surface 24 on the outer connection part 17a is so dimensioned that despite the offset v it is also present in the maximally offset region of the circumferential edge of the insertion hole 25, whereby however the inner annular shoulder surface designated there by 24a has a lesser width as a result of the offset v. The width of the inner annular shoulder surface 24 may however also be so short that in the region 24a no inner annular shoulder surface is present, because the annular shoulder surface ends present to both sides in region 24a run out towards one another.

The configuration in accordance with the invention so far described forms a quick-fastening connection 27 which makes possible a rapid and readily manipulated screwing together of the connection parts 17a, 17b. For the screwing together of the connection parts 17a, 17b the inner connection part 17b with the threaded pin 19 is inserted into the opening, generally designated with 28, of the insertion hole 25. The threaded pin 19 is inserted up to the annular shoulder surface 29, here half-moon shaped, present between the insertion hole 25 and the inner section 18a or L5 of the threaded bore 18, which annular shoulder surface is preferably formed by means of an inwardly convergent hollow conical surface. Insofar as the threaded pin 19, in this position, is not self-actingly laterally so displaced that its outer thread 32 comes into engagement with the inner thread 26 present in the longitudinal section L2 - due to the presence of the hollow conical shaped annular shoulder surface 29 and/or an edge chamfering 31 at the free end of the threaded pin 19 - the threaded pin is manually so displaced to the side that the outer thread 32 and the inner thread 26 come into

engagement. There is then needed only a screw movement with which the outer thread 32 is so far screwed into the inner thread 26 present in the longitudinal section L5 until the annular shoulder surfaces 23, 24 come up against one another and the connection parts 17a, 17c can be tensioned with one another at the stop 22. Due to the lateral support at the annular shoulder surfaces 23, 24, from which there is provided a considerable resistance moment, there is needed in the longitudinal region 18a or L5 of the threaded bore 18 no deep engagement of the thread. It is sufficient when e.g. one to three thread turns are in engagement, which can be carried out readily and rapidly. It is thus significant that the length section of the tool 5 designated by L3 is somewhat greater than the length L2 of the insertion hole 25, so that by means of further screwing in threaded engagement can be effected. The inner thread 26, present only on one side in length region L2, thereby contributes to stabilisation of the threaded engagement. In the screwed-in condition, the opening 28 is closed by means of the connection part 17b.

The release of the screw connection 17 is effected likewise readily and rapidly, namely in that only the thread engagement present in the length region L5 needs to be released by means of screwing out. Then, the threaded pin 19 can be laterally offset in the insertion hole 25 and drawn out.

The exemplary embodiment according to Fig. 4, in which the same or similar parts are provided with similar reference signs, differs from the above-described exemplary embodiment in that the insertion hole 25 is preferably arranged not laterally offset but coaxially of the threaded hole 18, whereby in the length region L2, which is shorter than the length region L3, the inner thread 26 is omitted and is present only in the length region L5. With this configuration, the threaded pin 19 is coaxially

inserted into the insertion hole 25 up to the annular shoulder surface 29, which also here is preferably formed by means of an inwardly convergent hollow conical surface. Then there is needed likewise only a short screw movement in order to establish the screw connection. The release of the screw connection 17 is effected in the opposite manner, likewise readily and rapidly. With this configuration the threaded pin 19 can, when it fits in a locking manner into the insertion hole 25, find a lateral support on the inner bounding surface of the insertion hole 25 over its entire length. Such a lateral abutment need not, however, be present, since the annular shoulder surfaces 23, 24 even then ensure a sufficient lateral abutment and support when a radial spacing is present between the outer thread 32 of the threaded pin 19 and the inner bounding surface of the insertion hole 25.

With the above-described exemplary embodiments, the entry region L2 of the threaded bore 18 is transversely widened. In contrast thereto, with the exemplary embodiment according to Figs. 5 and 6, in which the same or similar parts are provided with the same reference signs, a free end region L6 of the threaded pin 19 is so tapered on one side that the threaded pin 19 can be inserted over a part of its length into the threaded hole 18 and thus needs to be screwed in only in the region of its remaining length section L7. The tapering 33 is dimensioned or shaped to such a size that with a lateral displacement of the threaded pin 19 in the insertion hole 25 towards the tapered side, the thread on the opposite side comes out of engagement. Thus, the radial dimension t1 of the tapering 33 is dimensioned to be equal to the or somewhat greater than double the thread depth t. Thereby, the tapering 33 extends over an angular range w1 of at least about 180° or more, whereby it may run out with secantial surfaces 33a as shown in Fig. 6. The transition of the tapering 33 to the remaining length section L7 of the threaded pin 19 is

preferably formed by means of a cone-like step surface 34. The acute angle which the step surface 34 encloses with the longitudinal middle axis 7 is preferably approximately the same size or greater than the acute angle which the flanks of the inner thread enclose with the longitudinal middle axis. By these means the threaded pin 19, upon insertion, glides in without disturbance into its coaxial thread engagement position, and the introduction of the threaded pin 19 is facilitated, whereby due to the oblique or step surface 34 it is self-actingly displaced laterally and with the section of its outer thread 32 opposite to the tapering 33 comes into engagement with the inner thread 26 of the threaded bore 18. When this has happened, there is needed merely a short axial screw movement to bring about the screw connection 7, whereby here also for stability reasons only about one or more thread turns are sufficient to ensure a stable connection. Thus, the screw connection 17 of the configuration according to Fig. 5 and 6 can be rapidly connected, and selectively again released, in the sense of a quick-fastening connection 27.

With the exemplary embodiment according to Fig. 5 it is possible to form the stop 22 by means of the free edge region of the threaded pin 19 and shoulder surfaces 31, 39 arranged in the base region of the threaded bore 18, which are preferably formed in conical section shape: see Fig. 5.

With the configuration according to Fig. 5 and 6, the tapered length section L6 is somewhat shorter than the length L1 of the threaded bore 18, so that one or more thread turns are available in the length section L7 for the axial tensioning on stop 22 of the cone-shaped shoulder surfaces 29, 31 and/or the shoulder surfaces 23, 24 (not shown in Fig. 5).

Within the scope of the invention it is possible with all

exemplary embodiments to form the stop 22 by means of radial annular shoulder surfaces 23a, 24b on the outer and inner connection parts 17a, 17b, as Fig. 5 shows.

Further, with all exemplary embodiments, there may be arranged at the free end of the threaded pin 19 a tapered down cylindrical part 35, which in the screwed-together position engages into a correspondingly sized bore 36 in the outer connection part 17a, as shown in Fig. 5.

The exemplary embodiment according to Fig. 7, in which the same or similar parts are provided with the same reference signs, differs from the exemplary embodiment according to Figs. 2 and 3 in that the step between the end of the shoulder surface 24 and the thread tips, formed by the shoulder surface 24a, is formed in two steps. This is achieved by means of a second, concentric hole widening 42 which extends axially from approximately the middle region of the conical shoulder surface 24 inwardly and with the present exemplary embodiment is formed with a hollow cylindrical shape. The depth t2 of the hole widening 42 is preferably approximately the same or slightly greater than the groove depth of the inner thread. By these means, the inner thread begins only at the inner end of the second hole widening 42. The axial length of the hole widening 42 corresponds approximately to half the diameter of the threaded bore 18. Due to the first hole widening 20 the second hole widening 42 runs out at the inner wall present at 43. Due to the presence of the second hole widening 42 there are provided, upon plugging together with the threaded pin 19, when this meets the edge of the opening 28, two small steps 44a, 44b, in the region of which the threaded pin 19 is radially inwardly offset. By these means, the self-acting introduction of the threaded pin 19 into the opening 28 is improved even if the chamfer 31 at the forward end of the threaded pin 19 is of small radial dimension.

As Fig. 7 further shows, the handpiece shaft 3 is a substantially cylindrical sleeve 45 which in its forward end region, in which the threaded bore 18 is located, is inwardly thickened and stabilized, so that the thickness of the wall in its forward end region is greater than in its remaining rearward end region. In the middle region, the sleeve 45 has oblique or secantial through-holes 46, preferably in two transverse rows, which are elements of a pneumatic oscillation drive with which in functional operation of the handpiece 2 the oscillations are generated. A further element of the vibration drive 6 is a thin vibration sleeve 47 schematically illustrated in Fig. 7, the inner diameter of which is somewhat greater than the outer diameter of the sleeve 45 and which covers over on the outside the through-holes 46 arranged distributed over the circumference. For axial limiting of the vibration sleeve 47 there are associated with its two ends respective securing rings 48, indicated at an axial spacing, which sit in annular grooves 49 of the sleeve 45 and are thereby themselves axially positioned. The securing rings 48 may be rings of round cross-section of elastic material, e.g. rubber or plastics, e.g. so called O-rings.

In the rearward end region of the sleeve 45 there are formed - preferably formed on in one piece - two cylindrical pins 51, lying diametrically opposite one another, extending radially outwardly, which in connection with damping rings 52 of elastic material e.g. rubber or plastic rings, sitting thereon, serve for securing the sleeve 45 in the handpiece 2 in axial direction and in circumferential direction.